

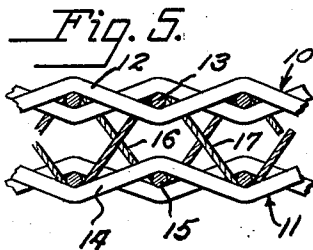
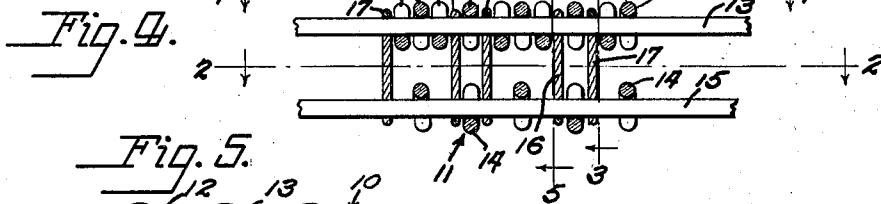
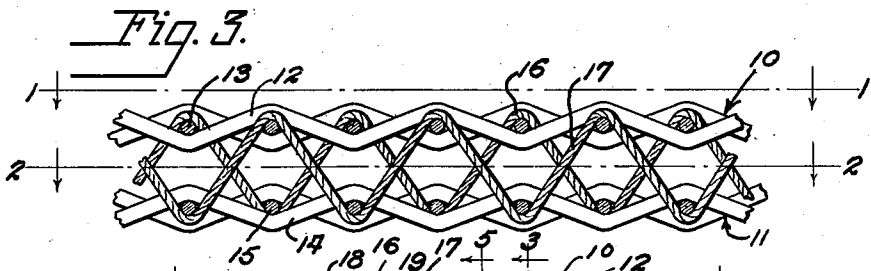
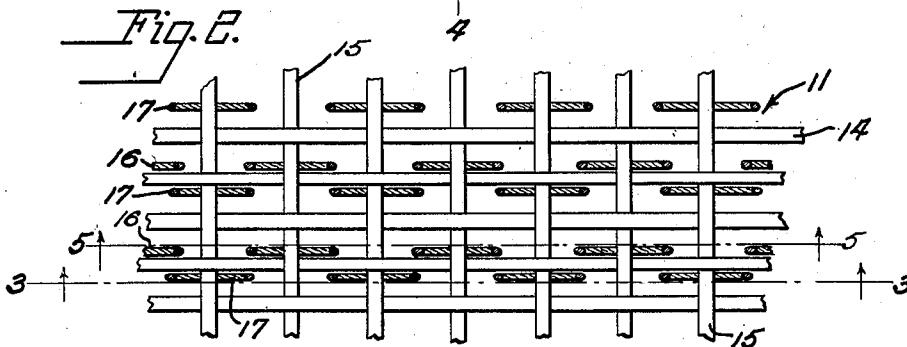
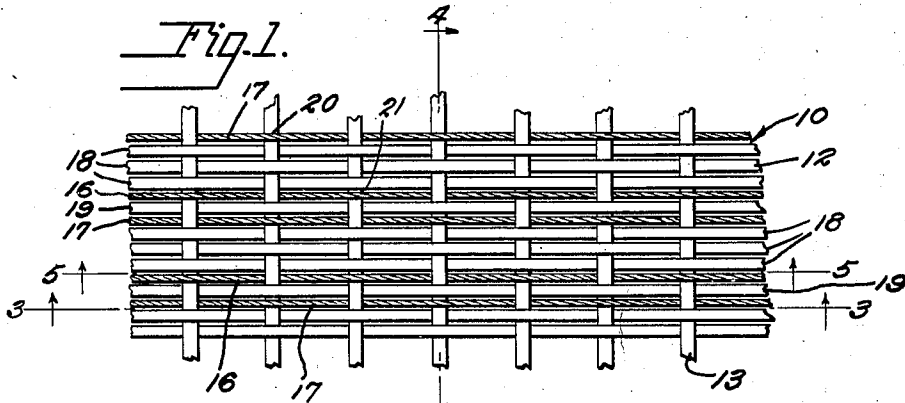
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DRIER FELT

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DRIER FELT

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1 Claim. (Cl. 139—410)

This invention relates to woven drier felts of the general type used in carrying moist newly formed paper pulp around and in contact with the heated drums of the paper making machinery.

One object of this invention is to provide a drier felt having greater and more uniform porosity.

Another object of this invention is to provide a drier felt wherein each of the fillers in top and bottom plies are tied into the structure of the other ply.

A further object of this invention is to provide a drier felt wherein the binder threads are closely woven to certain of the warp threads to improve the porosity of the structure.

Still another object is to provide a drier felt which will wear evenly in use.

Other objects and advantages of this invention will appear from the following description taken in connection with the accompanying drawing.

In the drawing, wherein like reference characters indicate corresponding parts in the various figures:

Figure 1 is a partial plan view of the upper ply of a drier felt incorporating features of this inventive concept.

Figure 2 is a partial plan view of the back or bottom ply of the drier felt, the plane being taken intermediate the two plies.

Figure 3 is a longitudinal vertical cross-section parallel with the warp threads and taken substantially on the line 3—3 of Figures 1 and 2.

Figure 4 is a transverse vertical cross-section through the drier felt taken substantially on the line 4—4 of Figure 1.

Figure 5 is a longitudinal vertical cross-section corresponding to a view parallel to the warp threads and taken substantially on the line 5—5 of Figures 1 and 2.

The preferred embodiment of the invention as shown presents a drier felt comprising a closely woven, even surfaced face ply 10, and a back ply 11 with an open weave. The face ply, Figure 1, comprises the warp yarns 12 and the weft or filler yarns 13, plain woven. The back ply, Figure 2, comprises the warp yarns 14 and the weft or filler yarns 15, also plain woven. The warp and weft yarns 12, 14 and 13, 15 respectively of the two plies are of about the same weight. I construct the face and back plies with equal weft count, see Figure 3, for a purpose that will appear hereinafter. The face ply, however, has more warp yarns than the back ply. In practice and in the preferred embodiment shown,

there are twice as many warp yarns in the face ply 10 as in the back ply 11.

The two plies are interwoven by means of binder yarns 16 and 17 comprising warp yarns, each of which passes over alternate weft yarns in the face ply 10, as at 20 and 21 in Figure 1, and under the intermediate alternate weft yarns in the back ply 11. The binder yarns 16 and 17 are alternated transversely of the fabric to pass over adjacent weft yarns in the face ply, and under adjacent weft yarns in the back ply. By means of this construction, each weft yarn of each ply is tied in by the binder yarns to interweave the two plies firmly. The binder yarns 16 and 17 are preferably finer than the body yarns 12, 13, 14 and 15, and are therefore imbedded within the weave of the respective plies without disturbing the pattern of the weave.

In the two-to-one warp yarn arrangement between face and back plies, adopted for the preferred embodiment shown, I arrange the warp yarns of the face ply in groups 18 and 19 demarcated by the binder yarns 16 and 17. The group 18 comprises three warp yarns and alternates with group 19 of one warp yarn, see Figure 4. By means of this construction, each weft yarn of the face and back plies is interwoven at intermittent points transversely of the fabric, spaced apart the extent of three warp yarns.

The fabric appears loose woven for purposes of clear illustration. In practice, both plies are tightly woven in the process of manufacture. The back ply is tightly woven because it has as many weft yarns as the face ply. With reference to the face ply, it is tightly woven to give it strength and to afford an even, smooth surface. The back ply with its deficiency of warp yarns affords a greater flexibility and greater porosity, which porosity is uniform throughout the area of the fabric because of the paired arrangement of the binder yarns 16 and 17. The air spaces between the yarns afford more rapid drying of the felt.

The surface of the drier felt does not have a multiplicity of relatively hard and high spots, as in the well-known constructions of the prior art, wherein all of the binders pass over and under the same filler threads in each ply. The elimination of these high spots results in the drier felt wearing uniformly throughout, its surfaces providing a long uniform life of the drier felt, as well as the elimination of individual filler threads from wearing loose and interfering with the good surface qualities of the product being manufactured.

- In the preferred embodiment, there are twice as many warp threads in the surface ply as in the back ply, although other arrangements may be found suitable within the scope of the invention. The warp and binder threads may be made either all of cotton material or partly of other materials, either mineral, animal, or vegetable, although a preferred construction utilizes cotton threads throughout.
- 10 In view of the described construction, a drier felt is provided having uniform wear, great porosity, and other advantages, as heretofore set forth.
- 15 Although a preferred embodiment of this invention is illustrated and described, variations within the true spirit and scope of the same are to be determined by the appended claim.

What I claim is:

A woven drier felt comprising a plain woven face ply, and a plain woven back ply, weft yarn of the face ply and back ply being equal in number per unit length of felt, warp yarns of the face ply being greater in number than the warp yarns of the back ply, warp binder yarns interweaving the two plies and disposed in pairs of adjacent yarns, the yarns of each pair of binder yarns being separated by a single warp yarn of the face ply and a single warp yarn of the back ply, the pairs of binder yarns being separated by three warp yarns of the face ply and by one warp yarn of the back ply.

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